

WE CLAIM:

1. A protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to a coding region of the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

10 2. The protein of claim 1, which is encoded by a complete coding region within said 1.33 kb EcoRI insert.

15 3. A recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to a coding region of a DNA molecule having a first sequence (SEQ ID NO.1):

20	AGACCTGTCC CTGTTGCAGC TGTTCTACCA CCCTGCCCG AGCTCGAACCA GGGCCTTCTC	60
	TACCTGCCCG AGGAGCTCAC CACCTGTGAT AGTGTGTAACATTGAATT AACAGACATT	120
	GTCGACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCG TGCTGTCCAC ACTCGTGGGC	180
25	CGCTACGGCG GTCGCACAAA GCTCTACAAT GCTTCCACT CTGATGTTCG CGACTCTCTC	240
	GCCCCGTTTA TCCCGGCCAT TGGCCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA	300
	GTGGAGGCCA TGGTCGAGAA GGGCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTGC	360
30	AACCGTGACG TGTCCAGGAT CACCTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT	420
	GAGACCATTG CCCATGGTAA AGTGGGCCAG GGCATCTCGG CCTGGAGCAA GACCTTCTGC	480
35	GCCCTTTG GCCCTGGTT CGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG	540
	GGTGTGTTT ACGGTGATGC CTTGATGAC ACCGTCTTCT CGGCGGCTGT GGCCGCAGCA	600
	AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTG ACTCCACCCA GAATAACTTT	660
40	TCTCTGGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC	720
	CTGTATCACC TTATAAGGTC TGCGTGGATC TTGCAGGCC CGAAGGGAGTC TCTGCGAGGG	780
45	TTTTGGAAGA AACACTCCGG TGAGCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG	840
	GCCGTTATTA CCCACTGTTA TGACTTCCGC GATTTTCAGG TGGCTGCCTT TAAAGGTGAT	900

	GATTGATAG TGCTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATGCC	960
5	GGCTGTGGCT TGAAGTTGAA GGTAGATTG CGCCCGATCG GTTGTATGC AGGTGTTGTG	1020
	GTGGCCCCCG GCCTTGGCGC GCTCCCTGAT GTTGTGCCT GTCGCCGGCG GCTTACCGAG	1080
	AAGAATTGGG GCCCTGGCCC TGAGCGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTC	1140
10	CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG	1200
	GTTCCTCTG GACTCGTTCA TAACCTGATT GGCACTGCTAC AGGCTGTTGC TGATGGCAAG	1260
	GCACATTTCA CTGAGTCAGT AAAACCAGTG CTCGA	1295
15	a second sequence (SEQ ID NO.5):	
	TCGAGCACTG GTTTTACTGA CTCAGTGAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC	60
20	ATGCCAATCA GTTATGAAC GAGTCCAGGG GAAACCCAT AAACACGGGA AACAAACATCC	120
	ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC	180
	TGCTCCGCCG GCTCAGGGCC AGGGCCCCAA TTCTTCTCGG TAAGCCGGCC GGCGAAGCGC	240
25	ACAACATCAG GGAGCGCGCC AAGGCCGGG GCCACCACAA CACCTGCATA CAAACCGATC	300
	GGGCGAAAT CTACCTCAA CTTCAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA	360
	CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTAAAGGC AGCCACCTGA	420
30	AAATCGCGGA AGTCATAACA GTGGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA	480
	AGAGTGCCGG GCTCACCGGA GTGTTCTTC CAAAACCTC GCAGAGACTC CTTGGGGCC	540
35	TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGGCCGA TGAGCCACTG CGGCATCCCA	600
	CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC	660
	TCAGAAAAGT CATTCTCAA CACCATGGAT GCCTTGCTG CGGCCACAGC CGCCGAGAAG	720
40	ACGGTGTCA CAAAGGCATC ACCGTAACAC ACACCCCTGAG GGAGCAGGGC CAGAATAGCC	780
	TTCTCAATAG CGCGGAACCA AGGGCCAAG AGGGCGCAGA AGGTCTTGCT CCAGGCCAG	840
	ATGCCCTGGC CCACCTTACG ATGGGCAATG GTCTCACCTG TGGTGAACCT GTTACAATCT	900
	TTCTGGAAAGA AGGTGATCCT GGACACGTCA CGGTTGCAAA GATCAAGCTC AAGGACGGCG	960
	GAGCCATCCT GGCCCTTCTC GACCATGGCC TCCACTAGCT CGTACAATTC ACAAGTTGTA	1020
45	ACCTGTACGG GGCCAAATGGC CGGGATAAAA CGGGCGAGAG AGTCGCGAAC ATCAGAGTGG	1080
	GAAGCATTGT AGAGCTTTGT GCGACCGCCG TAGCGGCCA CGAGTGTGGA CAGCACGGCC	1140
50	TTGCGCTGGC TCGGGGCGGC CATGCGGCAG TGCAACATGT CTGTTAATTC AAAATGTTACG	1200

	ACACTATCAC AGGTGGTGAG CTCTGGGC AGGTAGAGAA GGCCCTGTC GAGCTCGGG	1260
	CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT	1295
5	a third sequence (SEQ ID NO.6):	
	AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTAT TAAGGCTCCT	57
	GGCATCACTA CTGCTATTGA GCAGGGCTGCT CTAGCAGCGG CCAAACCTGTC CCTGGCGAAT	117
10	GCTGTGGTAG TTAGGCCTT TCTCTCTCAC CAGCAGATTG AGATCCTCAT TAACCTAATG	177
	CAACCTCGCC AGCTTGTGAGG CCGCCCCGAG GTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
15	ATCCATAACG AGCTGGAGCT TTACTGCCGC GCCCGCTCCG GCCGCTGTCT TGAAATTGGC	297
	GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
	GTTGGGCGTG ATGTTCAGCG CTGGTATACT GCTCCCACTC GCGGGCCGGC TGCTAATTGC	417
20	CGCGCGTTCCG CGCTGCGCGG GCTTCCCGCT GCTGACCGCA CTTACTGCCT CGACGGGTTT	477
	TCTGGCTGTA ACTTTCCGC CGAGACTGGC ATCGCCCTCT ACTCCCTTCA TGATATGTCA	537
25	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
	CATCTTCCGC CTGAGGTCT GCTGCCCGCT GGACATATC GCACCGCATC GTATTTGCTA	657
	ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG ATACTAGTGC TGGTTACAAC	717
30	CACGATGTCT CCAAATTGCG CTCCTGGATT AGAACCAACCA AGGTTACCGG AGACCATCCC	777
	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
35	CCGGAGCCAT CACCTATGCC TTATGTTCT TACCCCGGT CTACCGAGGT CTATGTCCGA	897
	TCGATCTTCG GCCCGGGTGG CACCCCTTCC TTATTCCCAA CCTCATGCTC CACTAAGTCG	957
	ACCTTCCATG CTGTCCCTGC CCATATTGG GACCGTCTTA TGCTGTTCGG GGCCACCTTG	1017
40	GATGACCAAG CCTTTGCTG CTCCCGTTA ATGACCTACC TTGCGGGCAT TAGCTACAAG	1077
	GTCACTGTTG GTACCCCTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
45	GCTGTTATCA CTGCCGCCCTA CCTTACCAATT TGCCACCAGC GGTATCTCCG CACCCAGGCT	1197
	ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCC AGAAGTTAT AACACGCCCTC	1257
	TACAGCTGGC TCTCGAGAA GTCCGGCCGT GATTACATCC CTGGCCGTCA GTTGGAGTTC	1317
50	TACGCCAGT GCAGGGCGCTG GCTCTCCGCC GGCTTCATC TTGATCCACG GGTGTTGGTT	1377
	TTTGACGAGT CGGCCCCCTG CCATTGTAGG ACCGCGATCC GTAAGGCAGCT CTCAAAGTTT	1437
55	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGACCTGCT TCCTTCAGCC TGCAGAAGGC	1497
	GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCCTGCT	1557

	GAGTCGGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG	1617
5	CTCTACCAGG CCCTCGATCT CCCCCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
	ACAGTAAAGG TCTCCCAGGT CGATGGGCGG ATCGATTGCG AGACCCCTTCT TGGTAACAAA	1737
	ACCTTTCGCA CGTCGTTCGT TGACGGGGCG GTCTTAGAGA CCAATGGCCC AGAGGCCAC	1797
10	AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTCAG TCTCACCTAT	1857
	GCCGCCTCTG CAGCTGGCT GGAGGTGCGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
15	GTTTTGCCCGGGTTC ACCCCGGTCA GCCCCCGGCG AGGTTACCGC CTTCTGCTCT	1977
	GCCCTATACA GGTTAACCG TGAGGCCAG CGCCATTGCG TGATCGGTAA CTTATGGTTC	2037
	CATCCTGAGG GACTCATTGG CCTCTTCGCC CCGTTTCGC CCGGGCATGT TTGGGAGTCG	2097
20	GCTAATCCAT TCTGTGGCGA GAGCACACTT TACACCCGTA CTTGGTCGGA GGTTGATGCC	2157
	GTCTCTAGTC CAGCCCGGCC TGACTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
25	GCCGCCACGC CTACCCCTGGC GGCCCCCTTA CCCCCCCCCG CACCGGACCC TTCCCCCCCCT	2277
	CCCTCTGCCCGGGCT TGAGCCGGCT TCTGGCGCTA CGCCGGGGGC CCCGGCCATA	2337
	ACTCACCAAGA CGGCCCGGCA CGGCCGCCTG CTCTTCACCT ACCCGGATGG CTCTAAGGTA	2397
30	TTCGCCGGCT CGCTGTTCGA GTGCACATGC ACGTGGCTCG TAAACCGCCTC TAATGTTGAC	2457
	CACCGCCCTG CGGGCGGGCT TTGCCATGCA TTTTACCAAAGGTACCCCGC CTCCCTTGAT	2517
35	GCTGCCTCTT TTGTGATGCG CGACGGCGCG GCCCGTACA CACTAACCCCC CGGGCCAATA	2577
	ATTCACGCTG TCGCCCCCTGA TTATAGGTTG GAACATAACC CAAAGAGGCT TGAGGCTGCT	2637
	TATCGGGAAA CTTGCTCCCG CCTCGGCACC GCTGCATACC CGCTCCTCGG GACCGGCATA	2697
40	TACCAAGGTGC CGATCGGCC CAGTTTGAC GCCTGGGAGC GGAACCACCG CCCCCGGGGAT	2757
	GAGTTGTACC TTCCCTGAGCT TGCTGCCAGA TGGTTTGAGG CCAATAGGCC GACCCGCCCG	2817
45	ACTCTCACTA TAACTGAGGA TGTTGCACGG ACAGCGAATC TGGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTTCACTAC	2937
	CAGTTTACTG CAGGTGTGCC TGGATCCGGC AAGTCCCGCT CTATCACCCA AGCCGATGTG	2997
50	GACGTTGTCG TGGTCCCGAC GCGTGAGTTG CGTAATGCCT GGCGCCGTG CGGCTTGCT	3057
	GCTTTACCC CGCATACTGC CGCCAGAGTC ACCCAGGGGC GCCGGGTTGT CATTGATGAG	3117
55	GCTCCATCCC TCCCCCTCA CCTGCTGCTG CTCCACATGC AGCGGGCCGC CACCGTCCAC	3177
	CTTCTTGGCG ACCCGAACCA GATCCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC	3237

	GCCATCAGGC CCGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
5	GATGTATGCG AGCTCATCCG TGGTGCATAC CCCATGATCC AGACCACTAG CCGGGTTCTC	3357
	CGTTCGTTGT TCTGGGGTGA GCCTGCCGTC GGGCAGAAAC TAGTGTTCAC CCAGGCGGCC	3417
	AAGCCCCCA ACCCCGGCTC AGTGACGGTC CACGAGGCAC AGGGCGCTAC CTACACGGAG	3477
10	ACCACTATTA TTGCCACAGC AGATGCCGG GGCCTTATTC AGTCGTCTCG GGCTCATGCC	3537
	ATTGTTGCTC TGACGCCA CACTGAGAAG TGCGTCATCA TTGACGCACC AGGCCTGCTT	3597
15	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATAACTTT TCCTCGCTGG TGGCGAAATT	3657
	GGTCACCAGC GCCCCATCAGT TATTCCCCGT GGCAACCCCTG ACGCCAATGT TGACACCCCTG	3717
	GCTGCCTTCC CGCCGTCTTG CCAGATTAGT GCCTTCCATC AGTTGGCTGA GGAGCTTGGC	3777
20	CACAGACCTG TCCCTGTTGC AGCTGTTCTA CCACCCCTGCC CCGAGCTCGA ACAGGGCCTT	3837
	CTCTACCTGC CCCAGGAGCT CACCACTGT GATAGTGTG TAACATTGAA ATTAACAGAC	3897
25	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGTGTC CACACTCGTG	3957
	GGCCGCTACG GCGGTGCGAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
	CTCGCCCGTT TTATCCCGC CATTGGCCCC GTACAGGTTA CAACTTGTGA ATTGTACGAG	4077
30	CTAGTGGAGG CCATGGTCGA GAAGGGCCAG GATGGCTCCG CCGTCCTTGA GCTTGATCTT	4137
	TGCAACCGTG ACGTGTCCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
35	GGTGAGACCA TTGCCCATGG TAAAGTGGGC CAGGGCATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCCGCCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
	CAGGGTGTGT TTTACGGTGA TGCTTTGAT GACACCGTCT TCTCGGCGGC TGTGGCCGCA	4377
40	GCAAAGGCAT CCATGGTGT TGAGAATGAC TTTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
	TTTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
45	CGCCTGTATC ACCTTATAAG GTCTGCGTGG ATCTGCAGG CCCCAGAAGGA GTCTCTGCGA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTTC TATGGAATAC TGTCTGGAAT	4617
	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTAAAGGT	4677
50	GATGATTGCA TAGTGCTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCTGATC	4737
	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCGA TCGGTTGTGA TGCAGGGTGT	4797
55	GTGGTGGCCC CGGGCCTTGG CGCGCTCCCT GATGTTGTGC GCTTCGCCGG CGGGCTTACC	4857
	GAGAAGAATT GGGGCCCTGG CCCTGAGCGG GCGGAGCAGC TCCGCCTCGC TGTTAGTGAT	4917

	TTCCCTCCGCA AGCTCACGAA TGTAGCTAG ATGTGTGTGG ATGTTGTTTC CCGTGTTAT	4977
5	GGGGTTTCCC CTGGACTCGT TCATAACCTG ATTGGCATGC TACAGGCTGT TGCTGATGGC	5037
	AAGGCACATT TCACTGAGTC AGTAAAACCA GTGCTGACT TGACAAATTCA AATCTTGTT	5097
	CGGGTGGAAT GA ATAACATGTC TTTTGCTGCG CCCATGGGTT CGCGACCATG	5149
10	CGCCCTCGGC CTATTTGTT GCTGCTCCTC ATGTTTTGC CTATGCTGCC CGCGCCACCG	5209
	CCCGGTCAGC CGTCTGGCCG CCGTCGTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC	5269
15	TGGGGTGACC GGGTTGATTTC TCAGCCCTTC GCAATCCCCT ATATTCATCC AACCAACCCC	5329
	TTCGCCCCCG ATGTCACCGC TGCGGCCGGG GCTGGACCTC GTGTTGCCA ACCCGCCCGA	5389
	CCACTCGGCT CCGCTTGGCG TGACCAGGCC CAGCGCCCCG CCGTTGCCCTC ACGTCGTAGA	5449
20	CCTACCACAG CTGGGGCCGC GCCGCTAA CCGCGGTGCG TCCGGCCCAT GACACCCCGC	5507
	CAGTGCCCTGA TGTCGACTCC CGCGGCCGCCA TCTTGCCTGG GCAGTATAAC CTATCAACAT	5567
25	CTCCCCCTTAC CTCTTCCGTG GCCACCGGCA CTAACCTGGT TCTTTATGCC GCCCCCTTTA	5627
	GTCCGCTTTT ACCCCCTTCAG GACGGCACCA ATACCCATAT AATGGCCACG GAAGCTCTA	5687
	ATTATGCCCA GTACCGGGTT GCCCGTGCCA CAATCGTTA CCGCCCGCTG GTCCCCAATG	5747
30	CTGTCGGCCGG TTACGCCATC TCCATCTCAT TCTGCCACA GACCACCAC ACCCCGACGT	5807
	CCGTTGATAT GAATTCAATA ACCTCGACGG ATGTTCGTAT TTTAGTCCAG CCCGGCATAG	5867
35	CCTCTGAGCT TGTGATCCCA AGTGAGCGCC TACACTATCG TAACCAAGGC TGGCGCTCCG	5927
	TCGAGACCTC TGGGGTGGCT GAGGAGGAGG CTACCTCTGG TCTTGTATG CTTTGATAC	5987
	ATGGCTCACT CGTAAATTCC TATACATAA CACCCATAC CGGTGCCCTC GGGCTGTTGG	6047
40	ACTTTGCCCT TGAGCTTGAG TTTCGCAACC TTACCCCGG TAACACCAAT ACGCGGGCT	6107
	CCCGTTATTC CAGCACTGCT CGCCACCGCC TTGTCGCCGG TGCGGACGGG ACTGCCGAGC	6167
	TCACCACAC CGCTGCTACC CGCTTTATGA AGGACCTCTA TTTTACTAGT ACTAATGGTG	6227
45	TCGGTGAGAT CGGCCGCCGGG ATAGCCCTCA CCCTGTTCAA CCTTGCTGAC ACTCTGCTTG	6287
	GC GGCGCTGCC GACAGAATTG ATTCGTCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCCG	6347
50	TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC	6407
	AGGATAAGGG TATTGCAATC CGGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC	6467
55	AGGATTATGA TAACCAACAT GAACAAGATC GGCGACGCC TTCTCCAGCC CCATCGGCC	6527
	CTTTCTCTGT CCTTCGAGCT AATGATGTGC TTTGGCTCTC TCTCACCGCT GCCGAGTATG	6587

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	ACCAGTCCAC TTATGGCTCT TCGACTGGCC CAGTTTATGT TTCTGACTCT GTGACCTTGG	6647
5	TTAATGTTGC GACCGGCGCG CAGGCCGTTG CCCGGTCGCT CGATTGGACC AAGGTCACAC	6707
	TTGACGGTCG CCCCCCTCTCC ACCATCCAGC AGTACTCGAA GACCTTCTTT GTCCTGCCGC	6767
	TCCCGCGTAA GCTCTCTTC TGGGAGGCAG GCACAACAA AGCCGGGTAC CCTTATAATT	6827
10	ATAAACACCAC TGCTAGCGAC CAACTGCTTG TCGAGAATGC CGCCGGGCAC CGGGTCGCTA	6887
	TTTCCACTTA CACCACTAGC CTGGGTGCTG GTCCCGTCTC CATTCTGCG GTTGCCGTTT	6947
15	TAGCCCCCA CTCTGCGCTA GCATTGCTTG AGGATACCTT GGACTACCCCT GCCCGCGCCC	7007
	ATACTTTGA TGATTCTGC CCAGAGTGCC GCCCCCTGG CCTTCAGGGC TGCGCTTCC	7067
	AGTCTACTGT CGCTGAGCTT CAGCGCCTTA AGATGAAGGT GGGTAAAACG CGGGAGTTGT	7127
20	AG TTTATTTGCT TGTGCCCCCC TTCTTCTGT TGCTTATTTC TCATTTCTGC	7179
	GTTCCCGCGCT CCCTGA	7195
	a fourth sequence (SEQ ID NO.10):	
25	GCCATGGAGG CCCACCAGTT CATTAAGGCT CCTGGCATCA CTACTGCTAT TGAGCAAGCA	60
	GCTCTAGCAG CGGCCAACTC CGCCCTTGCG AATGCTGTGG TGGTCCGGCC TTTCTTTCC	120
30	CATCAGCAGG TTGAGATCCT TATAAATCTC ATGCAACCTC GGCAAGCTGGT GTTTCGTCT	180
	GAGGTTTTTT GGAATCACCC GATTCAACGT GTTATACATA ATGAGCTTGA GCAGTATTGC	240
	CGTGCTCGCT CGGGTCGCTG CCTTGAGATT GGAGCCCACC CACCGCTCCAT TAATGATAAT	300
35	CCTAATGTCC TCCATCGCTG CTTTCTCCAC CCCGTCGGCC GGGATGTTCA GCGCTGGTAC	360
	ACAGCCCCGA CTAGGGGACC TGCGGCGAAC TGTCCCGCT CGGCACCTCG TGGTCTGCCA	420
40	CCAGCCGACC GCACTTACTG TTTGATGGC TTTGCCGGCT GCCGTTTGC CGCCGAGACT	480
	GGTGTGGCTC TCTATTCTCT CCATGACTTG CAGCCGGCTG ATGTTGCCGA GGCGATGGCT	540
	CGCCACGGCA TGACCCGCCT TTATGCAGCT TTCCACTTGC CTCCAGAGGT GCTCCTGCCT	600
45	CCTGGCACCT ACCGGACATC ATCCTACTTG CTGATCCACG ATGGTAAGCG CGCGGTTGTC	660
	ACTTATGAGG GTGACACTAG CGCCGGTTAC AATCATGATG TTGCCACCCCT CCGCACATGG	720
50	ATCAGGACAA CTAAGGTTGT GGGTGAACAC CCTTTGGTGA TCGAGCGGGT GCGGGGTATT	780
	GGCTGTCACT TTGTGTTGTT GATCACTGCG GCCCCTGAGC CCTCCCCGAT GCCCTACGTT	840
	CCTTACCCGC GTTCGACGGA GGTCTATGTC CGGTCTATCT TTGGGCCCCGG CGGGTCCCCG	900
55	TCGCTGTTCC CGACCGCTTG TGCTGTCAAG TCCACTTTTC ACGCCGTCCCC CACGCACATC	960

	TGGGACCGTC TCATGCTCTT TGGGGCCACC CTCGACGACC AGGCCTTTG CTGCTCCAGG	1020
	CTTATGACGT ACCTTCGTGG CATTAGCTAT AAGGTAACTG TGGGTGCCCT GGTGCTAAT	1080
5	GAAGGCCTGGA ATGCCACCGA GGATGCGCTC ACTGCAGTTA TTACGGCGGC TTACCTCACA	1140
	ATATGTCATC AGCGTTATTG GCGGACCCAG GCGATTCTA AGGGCATGCG CCGGCTTGAG	1200
10	CTTGAACATG CTCAGAAATT TATTCACGC CTCTACAGCT GGCTATTGA GAAGTCAGGT	1260
	CGTGATTACA TCCCAGGCCG CCAGCTGCAG TTCTACGCTC AGTGCCGCCG CTGGTTATCT	1320
	GCCGGGTTCC ATCTCGACCC CCGCACCTTA GTTTTGATG AGTCAGTGCC TTGTAGCTGC	1380
15	CGAACACCACCA TCCGGGGAT CGCTGGAAAA TTTTGCTGTT TTATGAAGTG GCTCGGTAG	1440
	GAGTGTCTT GTTTCTCCA GCCCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT	1500
20	GAGGCCTATG AAGGCTCTGA TGTTGATACT GCTGAGCCTG CCACCCCTAGA CATTACAGGC	1560
	TCATACATCG TGGATGGTCG GTCTCTGCAA ACTGTCTATC AAGCTCTCGA CCTGCCAGCT	1620
	GACCTGGTAG CTCGCGCAGC CCGACTGTCT GCTACAGTTA CTGTTACTGA AACCTCTGGC	1680
25	CGTCTGGATT GCCAAACAAT GATCGGCAAT AAGACTTTTC TCACTACCTT TGTTGATGGG	1740
	GCACGCCTTG AGGTTAACGG GCCTGAGCAG CTTAACCTCT CTTTGACAG CCAGCAGTGT	1800
	AGTATGGCAG CGGGCCCGTT TTGCCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT	1860
30	CATTTTCCA CCGCTGGCCT CGAGAGCCGT GTTGTGTTCC CCCCTGGTAA TGCCCCGACT	1920
	GCCCCGCCGA GTGAGGTAC CGCCTCTGC TCAGCTCTT ATAGGCACAA CCGGCAGAGC	1980
35	CAGCGCCAGT CGGTTATTGG TAGTTGTGG CTGCACCTG AAGGTTTGCT CGGCCTGTT	2040
	CCGCCCTTTT CACCCGGGCA TGAGTGGCGG TCTGCTAACCC CATTGCGG CGAGAGCACG	2100
40	CTCTACACCC GCACTGGTC CACAATTACA GACACACCCCT TAACTGTCGG GCTAATTCC	2160
	GGTCATTTGG ATGCTGCTCC CCACTCGGGG GGGCACCTG CTACTGCCAC AGGCCCTGCT	2220
	GTAGGGCTCGT CTGACTCTCC AGACCCCTGAC CCGCTACCTG ATGTTACAGA TGGCTCACGC	2280
45	CCCTCTGGGG CCCGTCGGC TGGCCCCAAC CGGAATGGCG TTCCGAGCG CCGCTTACTA	2340
	CACACCTACC CTGACGGCGC TAAGATCTAT GTCGGCTCCA TTTTCGAGTC TGAGTGCACC	2400
	TGGCTTGTCA ACGCATCTAA CGCCGGCCAC CGCCCTGGTG GCGGGCTTTG TCATGCTTT	2460
50	TTTCAGCGTT ACCCTGATTG GTTGACGCC ACCAAGTTG TGATGCGTGA TGGTCTTGCC	2520
	GCGTATACCC TTACACCCCG GCCGATCATT CATGCGGTGG CCCCGGACTA TCGATTGGAA	2580
55	CATAACCCCA AGAGGCTCGA GGCTGCCTAC CGCGAGACTT GCGCCCGCCG AGGCACTGCT	2640

	GCCTATCCAC TCTTAGGCAC TGGCATTAC CAGGTGCCTG TTGTTTGAG TTTGATGCC	2700
	TGGGAGCGGA ACCACCGCCC GTTTACGAG CTTTACCTAA CAGAGCTGGC GGCTCGGTGG	2760
5	TTTGAATCCA ACCGCCCCGG TCAGCCCACG TTGAACATAA CTGAGGATAC CGCCCGTGC	2820
	GCCAACCTGG CCCTGGAGCT TGACTCCGGG AGTGAAGTAG GCCGCGCATG TGCCGGGTGT	2880
10	AAAGTCGAGC CTGGCGTTGT GCGGTATCAG TTTACAGCCG GTGTCGGCG CTCTGGCAAG	2940
	TCAAAGTCGG TGCAACAGGC GGATGTTGGAT GTTGGTTTG TGCCCACTCG CGAGCTTCGG	3000
	AACGCTTGGC GGCGCCGGGG CTTTGCGGCA TTCACTCCGC ACACTGCGGC CCGTGTCACT	3060
15	AGCGGCCGTA GGGTTGTCAT TGATGAGGCC CCTTCGCTCC CCCCACACTT GCTGCTTTA	3120
	CATATGCAGC GTGCTGCATC TGTGCACCTC CTTGGGGACC CGAACATCAGAT CCCC GCCATA	3180
20	GATTTGAGC ACACCGGTCT GATTCCAGCA ATACGGCCGG AGTTGGTCCC GACTTCATGG	3240
	TGGCATGTCA CCCACCGTTG CCCTGCAGAT GTCTGTGAGT TAGTCCGTGG TGCTTACCC	3300
	AAAATCCAGA CTACAAGTAA GGTGCTCCGT TCCCTTTCT GGGGAGAGCC AGCTGTCGGC	3360
25	CAGAAGCTAG TGTTCACACA GGCTGCTAAG GCCGCGCACCC CGGGATCTAT AACGGTCCAT	3420
	GAGGCCAGG GTGCCACTTT TACCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC	3480
30	CTCATACAGT CCTCCCGGGC TCACGCTATA GTTGCTCTCA CTAGGCATAC TGAAAATGT	3540
	GTTATACTTG ACTCTCCCGG CCTGTTGCGT GAGGTGGTA TCTCAGATGC CATTGTTAAT	3600
	AATTCTTCC TTTCGGGTGG CGAGGTTGGT CACCAAGAGAC CATCGGTCA TCCGCGAGGC	3660
35	AACCTGACC GCAATGTTGA CGTGCTTGCG GCGTTCCAC CTTCATGCCA AATAAGCGCC	3720
	TTCCATCAGC TTGCTGAGGA GCTGGGCCAC CGGCCGGCGC CGGTGGCGGC TGTGCTACCT	3780
40	CCCTGCCCTG AGCTTGAGCA GGGCCTCTC TATCTGCCAC AGGAGCTAGC CTCCGTGAC	3840
	AGTGTGTGA CATTGAGCT AACTGACATT GTGCACTGCC GCATGGCGGC CCCTAGCCAA	3900
	AGGAAAGCTG TTTGTCCAC GCTGGTAGGC CGGTATGGCA GACGCACAAG GCTTTATGAT	3960
45	GCGGGTCACA CCGATGTCCG CGCCTCCCTT GCGCGCTTTA TTCCCACTCT CGGGCGGGTT	4020
	ACTGCCACCA CCTGTGAACCT TTTGAGCTT GTAGAGGCAGA TGGTGGAGAA GGGCCAAGAC	4080
50	GGTTCAGCCG TCCTCGAGTT GGATTTGTGC AGCCGAGATG TCTCCCGCAT AACCTTTTC	4140
	CAGAAGGATT GTAACAAGTT CACGACCGGC GAGACAATTG CGCATGGCAA AGTCGGTCAG	4200
	GGTATCTTCC GCTGGAGTAA GACGTTTGTTG GCCCTGGTT CGGTGCGATT	4260
55	GAGAAGGCTA TTCTATCCCT TTTACACAA GCTGTGTTCT ACGGGGATGC TTATGACGAC	4320

	TCAGTATTCT CTGCTGCCGT GGCTGGCGCC AGCCATGCCA TGGTGTGGAA AAATGATTT	4380
	TCTGAGTTG ACTCGACTCA GAATAACTTT TCCCTAGGTC TTGAGTGCAG CATTATGGAA	4440
5	GAGTGTGGTA TGCCCCAGTG GCTTGTCAAGG TTGTACCATG CCGTCCGGTC GGCGTGGATC	4500
	CTGCAGGCC CAAAGAGTC TTTGAGAGGG TTCTGGAAGA AGCATTCTGG TGAGCCGGGC	4560
10	AGCTTGCTCT GGAATACGGT GTGGAACATG GCAATCATTG CCCATTGCTA TGAGTTCCGG	4620
	GACCTCCAGG TTGCCGCCTT CAAGGGCGAC GACTCGGTG TCCTCTGTAG TGAATACCGC	4680
	CAGAGCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAGTTGAA GGCTGACTTC	4740
15	CGGCCGATTG GGCTGTATGC CGGGGTTGTC GTGCCCGG GGCTCGGGGC CCTACCCGAT	4800
	GTCGTTCGAT TCGCCGGACG GCTTCGGAG AAGAACTGGG GGCTGATCC GGAGCGGGCA	4860
20	GAGCAGCTCC GCCTCGCCGT GCAGGATTTG CTCCGTAGGT TAACGAATGT GGCCAGATT	4920
	TGTGTTGAGG TGGTGTCTAG AGTTTACGGG GTTTCCCGG GTCTGGTTCA TAACCTGATA	4980
	GGCATGCTCC AGACTATTGG TGATGGTAAG GCGCATTAA CAGAGTCTGT TAAGCCTATA	5040
25	CTTGACCTTA CACACTCAAT TATGCACCGG TCTGAATGAA TAACATGTGG TTTGCTGC	5100
	CCATGGGTTTC GCCACCATGC GCCCTAGGCC TCTTTGCTG TTGTTCTCT TGTTTCTGCC	5160
30	TATGTTGCC GCGCCACCGA CCGGTAGCC GTCTGGCCGC CGTCGTGGGC GGCGCAGCGG	5220
	CGGTACCGGC GGTGGTTCT GGGGTGACCG GGTGATTCT CAGCCCTTCG CAATCCCCTA	5280
	TATTCACTCCA ACCAACCCCT TTGCCCCAGA CGTTGCCGCT GCGTCCGGGT CTGGACCTCG	5340
35	CCTTCGCCAA CCAGCCGGC CACTTGGCTC CACTTGGCGA GATCAGGCC AGCGCCCTC	5400
	CGCTGCCTCC CGTCGCCGAC CTGCCACAGC CGGGGCTGCG GCGCTGACGG CTGTGGCGCC	5460
40	TGCCCATGAC ACCTCACCCG TCCCGGACGT TGATTCTCGC GGTGCAATTG TACGCCGCCA	5520
	GTATAATTG TCTACTTCAC CCCTGACATC CTCTGTGGCC TCTGGACTA ATTTAGTCCT	5580
	GTATGCAGCC CCCCTTAATC CGCCTCTGCC GCTGCAGGAC GGTACTAATA CTCACATTAT	5640
45	GGCCACAGAG GCCTCCAATT ATGCACAGTA CGGGGTTGCC CGCGCTACTA TCCGTTACCG	5700
	GCCCCCTAGTG CCTAATGCAG TTGGAGGCTA TGCTATATCC ATTTCTTCTT GGCCTCAAAC	5760
50	AACCACAAACC CCTACATCTG TTGACATGAA TTCCATTACT TCCACTGATG TCAGGATTCT	5820
	TGTTCAACCT GGCATAGCAT CTGAATTGGT CATCCAAGC GAGCGCCTTC ACTACCGCAA	5880
	TCAAGGTTGG CGCTCGGTG AGACATCTGG TGTTGCTGAG GAGGAAGCCA CCTCCGGTCT	5940
55	TGTCACTGTTA TGCATACATG GCTCTCCAGT TAACTCCTAT ACCAATACCC CTTATACCGG	6000

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	TGCCCTTGGC TTACTGGACT TTGCCTTAGA GCTTGAGTT CGCAATCTCA CCACCTGTAA	6060
	CACCAATACA CGTGTGTCCC GTTACTCCAG CACTGCTCGT CACTCCGCC GAGGGGCCGA	6120
5	CGGGACTGCG GAGCTGACCA CAACTGCAGC CACCAAGGTT ATGAAAGATC TCCACTTTAC	6180
	CGGCCTTAAT GGGTAGGTG AAGTCGGCCG CGGGATAGCT CTAACATTAC TTAACCTTGC	6240
10	TGACACGCTC CTCGGCGGGC TCCCGACAGA ATTAATTCG TCGGCTGGCG GGCAACTGTT	6300
	TTATTCCCGC CCGGTTGTCT CAGCCAATGG CGAGCCAACC GTGAAGCTCT ATACATCAGT	6360
	GGAGAATGCT CAGCAGGATA AGGGTGTTC TATCCCCAC GATATCGATC TTGGTGATTC	6420
15	GCCTGTGGTC ATTCAGGATT ATGACAACCA GCATGAGCAG GATCGGCCCA CCCCCTCGCC	6480
	TGCGCCATCT CGGCCTTTT CTGTTCTCG AGCAAATGAT GTACTTTGGC TGTCCCTCAC	6540
20	TGCAGCCGAG TATGACCAGT CCACTTACGG GTCTCAACT GGCCCGGTTT ATATCTCGGA	6600
	CAGCGTGAAT TTGGTGAATG TTGCGACTGG CGCGCAGGCC GTAGCCCGAT CGCTTGACTG	6660
	GTCCAAAGTC ACCCTCGACG GGCGGCCCT CCCGACTGTT GAGCAATATT CCAAGACATT	6720
25	CTTTGTGCTC CCCCTCGTG GCAAGCTCTC CTTTTGGAG GCCGGCACAA CAAAAGCAGG	6780
	TTATCCTTAT AATTATAATA CTACTGCTAG TGACCAAGATT CTGATTGAAA ATGCTGCCGG	6840
30	CCATCGGGTC GCCATTCAA CCTATACCAC CAGGCTTGGG GCCGGTCCGG TCGCCATTTC	6900
	TGCGGCCGCG GTTTGGCTC CACGCTCCGC CCTGGCTCTG CTGGAGGATA CTTTGATTA	6960
	TCCGGGGCGG GCGCACACAT TTGATGACTT CTGCCCTGAA TGCCGCGCTT TAGGCCTCCA	7020
35	GGGTTGTGCT TTCCAGTCAA CTGTCGCTGA GCTCCAGCGC CTTAAAGTTA AGGTGGGTAA	7080
	AACTCGGGAG TTGTAGTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTTCTTT	7140
40	ATTTCTTTT TCTCGGTCCC GCGCTCCCTG A	7171
	or a fifth sequence (SEQ ID NO.12):	
	CGGGCCCGT ACAGGTACAA ACCTGTGAGT TGTACGAGCT AGTGGAGGCC ATGGTCGAGA	60
	AAGGCCAGGA TGGCTCCGCC GTCTTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA	120
45	TCACCTTTT CCAGAAAGAT TGCAATAAGT TCACACAGGG AGAGACCATC GCCCATGGTA	180
	AAGTGGGCCA GGGCATTTCG GCCTGGAGTA AGACCTTCTG TGCCCTTTG GGCCCTGGT	240
50	TCCGTGCTAT TGAGAAGGCT ATTCTGGCCC TGCTCCCTCA GGGTGTGTTT TATGGGGATG	300
	CCTTGATGA CACCGTCTTC TCGGCGCGTG TGGCCGCAGC AAAGGCGTCC ATGGTGTGG	360
55	AGAATGACTT TTCTGAGTTT GACTCCACCC AGAATAATT TTCCCTGGC CTAGAGTGTG	420
	CTATTATGGA GAAGTGTGGG ATGCCGAAGT GGCTCATCCG CTTGTACCAAC CTTATAAGGT	480

5	CTGCGTGGAT CCTGCAGGCC CCGAAGGAGT CCCTGCGAGG GTGTTGGAAG AAACACTCCG GTGAGCCCGG CACTCTTCTA TGGAATACTG TCTGGAACAT GGCGTTATC ACCCATTGTT ACGATTTCCG CGATTTGCAG GTGGCTGCCT TTAAAGGTGA TGATTCGATA GTGCTTGCA	540 600 660
10	GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA AGGTGGGTTT CCGTCCGATT GGTTTGATG CAGGTGTTGT GGTGACCCCC GGCTTGGCG	720 780
	CGCTTCCCGA CGTCGTGCC TTGTCCGGCC GGCTTACTGA GAAGAATTGG GGCCCTGGCC CTGAGCGGGC GGAGCAGCTC CGCCTTGCTG TGCG	840 874

15 or a sequence complementary thereto.

4. A protein which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) derived from a viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZXF1(ET1.1) carried in E. coli strain BB4, and having ATCC Deposit Nno. 67717.

5. The protein of claim 4, which is encoded by a coding region within said 1.33 kb EcoRI insert.

30 6. A protein which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB hepatitis and (b) encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

35 7. A method of detecting infection by
enterically transmitted nonA/nonB hepatitis viral
agent in a test individual, comprising:
40 providing a peptide antigen which is (a)
immunoreactive with antibodies present in individuals
infected with enterically transmitted nonA/nonB
hepatitis and (b) derived from a viral hepatitis agent
whose genome contains a region which is homologous to

the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717,

5 reacting serum from the test individual with such antigen, and

examining the antigen for the presence of bound antibody.

8. The method of claim 7, wherein the serum
10 antibody is an IgM or IgG antibody, or a mixture of both, the antigen provided is attached to a support, said reacting includes contacting such serum with the support and said examining includes reacting the support and bound serum antibody with a reporter-labeled anti-human antibody.

9. A kit for ascertaining the presence of serum antibodies which are diagnostic of enterically transmitted nonA/nonB hepatitis infection, comprising
20 a support with surface-bound recombinant peptide antigen which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB viral hepatitis agent and (b) derived from a viral hepatitis agent
25 whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717, and
30 a reporter-labeled anti-human antibody.

10. A DNA fragment derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid
35 pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

11. The fragment of claim 10, which is derived
from said 1.33 kb EcoRI insert.

12. A DNA molecule comprising genetic sequence
5 406.3-2 or 406.4-2 or a fragment thereof, wherein said
fragment comprises at least 12 consecutive
nucleotides.

13. A DNA fragment derived from an enterically
10 transmitted nonA/nonB viral hepatitis agent whose
genome contains a region which is homologous to a DNA
fragment within a first sequence (SEQ ID NO.1):

	AGACCTGTCC CTGTTGCAGC TGTTCTACCA CCCTGCCCG AGCTCGAACAA GGGCCTTCTC	60
15	TACCTGCCCG AGGAGCTCAC CACCTGTGAT AGTGTGTAACATTGAATT AACAGACATT	120
	GTGCACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCG TGCTGTCCAC ACTCGTGGGC	180
20	CGCTACGGCG GTCGCACAAA GCTCTACAAT GCTTCCACT CTGATGTTCG CGACTCTCTC	240
	GCCCCGTTTA TCCCGGCCAT TGGCCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA	300
	GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTGC	360
25	AACCGTGACG TGTCCAGGAT CACCTTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT	420
	GAGACCATTG CCCATGGTAA AGTGGGCCAG GGCACTCTGG CCTGGAGCAA GACCTTCTGC	480
	GCCCTCTTG GCCCTTGGTT CCGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG	540
30	GGTGTGTTT ACGGTGATGC CTTTGATGAC ACCGTCTTCT CGGCAGCTGT GGCCGCAGCA	600
	AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTG ACTCCACCCA GAATAACTTT	660
35	TCTCTGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC	720
	CTGTATCACC TTATAAGGTC TGCGTGGATC TTGCAGGCC CGAAGGAGTC TCTGCGAGGG	780
	TTTTGGAAGA AACACTCCGG TGAGCCCGC ACTCTTCTAT GGAATACTGT CTGGAATATG	840
40	GCCGTTATTA CCCACTGTTA TGACTTCCGC GATTTTCAGG TGGCTGCCTT TAAAGGTGAT	900
	GATTGATAG TGCTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATCGCC	960
45	GGCTGTGGCT TGAAGTTGAA GGTAGATTTC CGCCCGATCG GTTGTATGC AGGTGTTGTG	1020
	GTGGCCCCCG GCCTTGGCGC GCTCCCTGAT GTTGTGCGCT TCGCCGGCCG GCTTACCGAG	1080
50	AAGAATTGGG GCCCTGGCCC TGAGCGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTC	1140

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	CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG	1200
	GTTCCTCTG GACTCGTTCA TAACCTGATT GGATGCTAC AGGCTGTTGC TGATGGCAAG	1260
5	GCACATTTCA CTGAGTCAGT AAAACCAGTG CTCGA	1295
	a second sequence (SEQ ID NO.5):	
	TCGAGCACTG GTTTACTGA CTCAGTAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC	60
10	ATGCCAATCA GTTTATGAAC GAGTCAGGG GAAACCCAT AAACACGGGA ACAACATCC	120
	ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC	180
15	TGCTCCGCC GCTCAGGGCC AGGGCCCCAA TTCTTCGG TAAGCCGGCC GGCAGCGC	240
	ACAACATCAG GGAGCGCGCC AAGGCCGGG GCCACCACAA CACCTGCATA CAAACCGATC	300
	GGGCGGAAAT CTACCTCAA CTTCAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA	360
20	CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTAAAGGC AGCCACCTGA	420
	AAATCGCGGA AGTCATAACA GTGGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA	480
25	AGAGTGCCGG GCTCACCGGA GTGTTCTTC CAAACCCCTC GCAGAGACTC CTTCGGGGCC	540
	TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGGCAGA TGAGCCACTG CGGCATCCCA	600
	CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC	660
30	TCAGAAAAGT CATTCTAAA CACCATGGAT GCCTTGCTG CGGCCACAGC CGCCGAGAAG	720
	ACGGTGTAT CAAAGGCATC ACCGTAACAC ACACCCGTAG GGAGCAGGGC CAGAATAGCC	780
35	TTCTCAATAG CGCGGAACCA AGGGCCAAG AGGGCGCAGA AGGTCTTGCT CCAGGCCGAG	840
	ATGCCCTGGC CCACTTACG ATGGCAATG GTCTCACCTG TGGTGAACCT GTTACAATCT	900
	TTCTGGAAAGA AGGTGATCCT GGACACGTCA CGGTTGCAA GATCAAGCTC AAGGACGGCG	960
40	GAGCCATCCT GGCCCTCTC GACCATGGCC TCCACTAGCT CGTACAATTC ACAAGTTGTA	1020
	ACCTGTACGG GGCCATGGC CGGGATAAAA CGGGCGAGAG AGTCGCGAAC ATCAGAGTGG	1080
45	GAAGCATTGT AGAGCTTGT GCGACCGCCG TAGCGGCCA CGAGTGTGGA CAGCACGGCC	1140
	TTGCGCTGGC TCGGGCGGC CATGCGGCAG TGCACAATGT CTGTTAATTG AAATGTTACG	1200
	ACACTATCAC AGGTGGTGAG CTCCCTGGGC AGGTAGAGAA GGCCCTGTTG GAGCTCGGGG	1260
50	CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT	1295
	a third sequence (SEQ ID NO.6):	
	AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTTAT TAAGGCTCCT	57
55	GGCATCACTA CTGCTATTGA GCAGGCTGCT CTAGCAGCGG CCAACTCTGC CCTGGCGAAT	117

	GCTGTGGTAG TTAGGCCTT TCTCTCTCAC CAGCAGATTG AGATCCTCAT TAACCTAATG	177
5	CAACCTCGCC AGCTTGTGAG CCGCCCCGAG GTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
	ATCCATAACG AGCTGGAGCT TTACTGCCGC GCCCGCTCCG GCCGCTGTCT TGAAATTGGC	297
10	GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
	GTTGGGCGTG ATGTTCAGCG CTGGTATACT GCTCCCCTC GCGGGCCGGC TGCTAATTGC	417
15	CGGCGTTCCG CGCTGCGCGG GCTTCCCCTG GCTGACCGCA CTTACTGCCT CGACGGGTTT	477
	TCTGGCTGTA ACTTTCCCGC CGAGACTGGC ATCGCCCTCT ACTCCCTCA TGATATGTCA	537
20	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
	CATCTTCCGC CTGAGGTCT GCTGCCCTCT GGCACATATC GCACCGCATC GTATTTGCTA	657
25	ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG ATACTAGTGC TGGTTACAAC	717
	CACGATGTCT CCAACTTGCG CTCCTGGATT AGAACCAACCA AGGTTACCGG AGACCATCCC	777
	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
30	CCGGAGCCAT CACCTATGCC TTATGTTCT TACCCCGGT CTACCGAGGT CTATGTCCGA	897
	TCGATCTTCG GCCCGGGTGG CACCCCTTCC TTATTCCAA CCTCATGCTC CACTAAGTCG	957
35	ACCTTCCATG CTGTCCCTGC CCATATTGG GACCGTCTTA TGCTGTTGG GGCCACCTTG	1017
	GATGACCAAG CCTTTGCTG CTCCCGTTA ATGACCTACC TTCGGGCAT TAGCTACAAG	1077
	GTCACTGTTG GTACCCCTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
40	GCTGTTATCA CTGCCGCCTA CCTTACCAATT TGCCACCAGC GGTATCTCCG CACCCAGGCT	1197
	ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCC AGAAGTTTAT AACACGCCCTC	1257
	TACAGCTGGC TCTCGAGAA GTCCGGCCGT GATTACATCC CTGGCGTCA GTTGGAGTTC	1317
45	TACGCCCAAGT GCAGGGCGCTG GCTCTCCGCC GGCTTTCATC TTGATCCACG GGTGTTGGTT	1377
	TTTGACGAGT CGGCCCCCTG CCATTGTAGG ACCGCGATCC GTAAGGCAGCT CTCAAAGTTT	1437
	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGCACCTGCT TCCTTCAGCC TGCGAGAGGC	1497
50	GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCCTGCT	1557
	GAGTCCGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG	1617
	CTCTACCAAGG CCCTCGATCT CCCCCGCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
55	ACAGTAAAGG TCTCCCAGGT CGATGGGCGG ATCGATTGCG AGACCCCTCT TGGTAACAAA	1737
	ACCTTCGCA CGTCGTTCGT TGACGGGGCG GTCTTAGAGA CCAATGGCCC AGAGCGCCAC	1797

	AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTCAG TCTCACCTAT	1857
5	GCCGCCTCTG CAGCTGGCT GGAGGTGCGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
	GTTTTGCCC CCGGTGTTTC ACCCCGGTCA GCCCCGGCG AGGTTACCGC CTTCTGCTCT	1977
10	GCCCTATACA GGTTAACCG TGAGGCCAG CGCCATTGC TGATCGGTAA CTTATGGTTC	2037
	CATCCTGAGG GACTCATTGG CCTCTTCGCC CCGTTTCGC CCGGGCATGT TTGGGAGTCG	2097
	GCTAATCCAT TCTGTGGCGA GAGCACACTT TACACCCGTA CTTGGTCGGA GGTTGATGCC	2157
15	GTCTCTAGTC CAGCCCGGCC TGACTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
	GCCGCCACGC CTACCCCTGGC GGCCCCCTCTA CCCCCCCCCCTG CACCGGACCC TTCCCCCCCCT	2277
	CCCTCTGCC CCGCGCTTGC TGAGCCGGCT TCTGGCGCTA CCGCCGGGGC CCCGGCCATA	2337
20	ACTCACCAGA CGGCCCGGCA CCGCCGCCTG CTCTCACCT ACCCGGATGG CTCTAAGGTA	2397
	TTCGCCGGCT CGCTGTTCGA GTGACATGC ACGTGGCTG TTAACCGTC TAATGTTGAC	2457
25	CACCGCCCTG GCGGCGGGCT TTGCCATGCA TTTTACCAAA GGTACCCCGC CTCCCTTGAT	2517
	GCTGCCTCTT TTGTGATGCG CGACGGCGCG GCCGCGTACA CACTAACCCC CCGGCCAATA	2577
	ATTCACGCTG TCGCCCCCTGA TTATAGGTTG GAACATAACC CAAAGAGGCT TGAGGCTGCT	2637
30	TATCGGGAAA CTTGCTCCG CCTCGGCACC GCTGCATACC CGCTCCTCGG GACCGGCATA	2697
	TACCAAGGTGC CGATCGGCC CAGTTTGAC GCCTGGGAGC GGAACCACCG CCCCCGGGGAT	2757
35	GAGTTGTACC TTCTGAGCT TGCTGCCAGA TGGTTTGAGG CCAATAGGCC GACCCGCCCG	2817
	ACTCTCACTA TAACTGAGGA TGTTGCACGG ACAGCGAACATC TGGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTTCACTAC	2937
40	CAGTTTACTG CAGGTGTGCC TGGATCCGGC AAGTCCCGCT CTATCACCCA AGCCGATGTG	2997
	GACGTTGTCG TGGTCCCGAC GCGTGAGTTG CGTAATGCCT GGCGCCGTC CGGCTTTGCT	3057
45	GCTTTTACCC CGCATACTGC CGCCAGAGTC ACCCAGGGGC GCCGGGTTGT CATTGATGAG	3117
	GCTCCATCCC TCCCCCTCA CCTGCTGCTG CTCCACATGC AGCGGGCCGC CACCGTCCAC	3177
	CTTCTGGCG ACCCGAACCA GATCCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC	3237
50	GCCATCAGGC CCGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
	GATGTATGCG AGCTCATCCG TGGTGCATAC CCCATGATCC AGACCACTAG CCGGGTTCTC	3357
55	CGTTCGTTGT TCTGGGGTGA GCCTGCCGTC GGGCAGAAC TAGTGTTCAC CCAGGCGGCC	3417
	AAGCCCGCCA ACCCCGGCTC AGTGACGGTC CACGAGGCGC AGGGCGCTAC CTACACGGAG	3477

	ACCACTATTA TTGCCACAGC AGATGCCCGG GGCTTATTC AGTCGCTCG GGCTCATGCC	3537
5	ATTGTTGCTC TGACGCGCCA CACTGAGAAG TGCGTCATCA TTGACGCACC AGGCCTGCTT	3597
	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATAACTTT TCCTCGCTGG TGCGAAATT	3657
	GGTCACCAGC GCCCATCAGT TATTCCCCGT GGCAACCCTG ACGCCAATGT TGACACCCCTG	3717
10	GCTGCCTTCC CGCCGCTTGT CCAGATTAGT GCCTTCCATC AGTTGGCTGA GGAGCTTGGC	3777
	CACAGACCTG TCCCTGTTGC AGCTGTTCTA CCACCCCTGCC CCGAGCTCGA ACAGGGCCTT	3837
15	CTCTACCTGC CCCAGGAGCT CACCACCTGT GATAGTGTG TAAACATTGA ATTAACAGAC	3897
	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGCTGTC CACACTCGTG	3957
	GGCCGCTACG GCGGTCGCAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
20	CTCGCCCGTT TTATCCCGGC CATTGGCCCC GTACAGGTTA CAACTTGTGA ATTGTACGAG	4077
	CTAGTGGAGG CCATGGTCGA GAAGGGCCAG GATGGCTCCG CCGTCCTTGA GCTTGATCTT	4137
25	TGCAACCGTG ACGTGTCCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
	GGTGAGACCA TTGCCCATGG TAAAGTGGGC CAGGGCATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCGCGCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
30	CAGGGTGTGT TTTACGGTGA TGCTTTGAT GACACCGTCT TCTCGGCGGC TGTGGCCGCA	4377
	GCAAAGGCAT CCATGGTGT TGAGAATGAC TTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
35	TTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
	CGCCTGTATC ACCTTATAAG GTCTCGTGG ATCTTGCAGG CCCCAGAAGGA GTCTCTGCGA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTTTC TATGGAATAC TGTCTGGAAT	4617
40	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTAAAGGT	4677
	GATGATTGCA TAGTGTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCTGATC	4737
45	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCGA TCGGTTGTA TGCAGGTGTT	4797
	GTGGTGGCCC CGGGCCTTGG CGCGCTCCCT GATGTTGTGC GCTTCGCCGG CGGGCTTACC	4857
	GAGAAGAATT GGGGCCCTGG CCCTGAGCGG GCGGAGCAGC TCCGCCTCGC TGTTAGTGAT	4917
50	TTCCCTCGCA AGCTCACGAA TGAGCTCAG ATGTGTGTGG ATGTTGTTTC CCGTGTTTAT	4977
	GGGGTTTCCC CTGGACTCGT TCATAACCTG ATTGGCATGC TACAGGCTGT TGCTGATGGC	5037
55	AAGGCACATT TCACTGAGTC AGTAAAACCA GTGCTGACT TGACAAATTC AATCTTGTGT	5097
	CGGGTGGAAT GA ATAACATGTC TTTTGCTGCG CCCATGGGTT CGCGACCATG	5149

	CGCCCTCGGC CTATTTGTT GCTGCTCCTC ATGTTTTGC CTATGCTGCC CGGCCACCG	5209
5	CCCGGTCAAGC CGTCTGGCCG CCGTCGTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC	5269
	TGGGGTGACC GGGTTGATTC TCAGCCCTTC GCAATCCCT ATATTCACTC AACCAACCCC	5329
	TTCGCCCCCG ATGTCACCGC TGCGGCCGGG GCTGGACCTC GTGTCGCCA ACCCGCCCGA	5389
10	CCACTCGGCT CCGCTTGGCG TGACCAGGCC CAGCGCCCCG CCGTTGCCCTC ACGTCGTAGA	5449
	CCTACACAG CTGGGGCCGC GCCGCTAA CCGCGGTGCG TCCGGCCCAT GACACCCCGC	5507
15	CAGTGCCTGA TGTCGACTCC CGCGGCCCA TCTTGCGCCG CGAGTATAAC CTATCAACAT	5567
	CTCCCCCTTAC CTCTTCCGTG GCCACCGGCA CTAACCTGGT TCTTATGCC GCCCTCTTA	5627
	GTCCGCTTT ACCCCTTCAG GACGGCACCA ATACCCATAT AATGCCACG GAAGCTTCTA	5687
20	ATTATGCCCA GTACCGGGTT GCCCGTGCCA CAATCCGTTA CCGCCCGCTG GTCCCCAATG	5747
	CTGTCGGCGG TTACGCCATC TCCATCTCAT TCTGCCACA GACCACCAAC ACCCGACGT	5807
25	CCGTTGATAT GAATTCAATA ACCTCGACGG ATGTTGCTAT TTTAGTCCAG CCCGGCATAG	5867
	CCTCTGAGCT TGTGATCCA AGTGAGCGCC TACACTATCG TAACCAAGGC TGGCGCTCCG	5927
	TCGAGACCTC TGGGGTGGCT GAGGAGGAGG CTACCTCTGG TCTTGTATG CTTGCATAC	5987
30	ATGGCTCACT CGTAAATTCC TATACTAATA CACCTATAC CGGTGCCCTC GGGCTGTTGG	6047
	ACTTTGCCCT TGAGCTTGAG TTTCGCAACC TTACCCCCGG TAACACCAAT ACGCGGGTCT	6107
35	CCCGTTATTC CAGCACTGCT CGCCACCGCC TTGTCGCCGG TGCGGACGGG ACTGCCGAGC	6167
	TCACCAACAC GGCTGCTACC CGCTTATGA AGGACCTCTA TTTACTAGT ACTAATGGTG	6227
	TCGGTGAGAT CGGCCGCGGG ATAGCCCTCA CCCTGTTCAA CCTTGCTGAC ACTCTGCTTG	6287
40	GGGGCCTGCC GACAGAATTG ATTTGTCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCCG	6347
	TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC	6407
45	AGGATAAGGG TATTGCAATC CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC	6467
	AGGATTATGA TAACCAACAT GAACAAGATC GGCGACGCC TTCTCCAGCC CCATCGCGCC	6527
	CTTTCTCTGT CCTTCGAGCT AATGATGTGC TTTGGCTCTC TCTCACCGCT GCCGAGTATG	6587
50	ACCAGTCCAC TTATGGCTCT TCGACTGGCC CAGTTATGT TTCTGACTCT GTGACCTTGG	6647
	TTAATGTTGC GACCGGCGCG CAGGCCGTTG CCCGGTCGCT CGATTGGACC AAGGTCACAC	6707
55	TTGACGGTCG CCCCTCTCC ACCATCCAGC AGTACTCGAA GACCTTCTTT GTCCCTGCCGC	6767
	TCCGCGGTAA GCTCTTTTC TGGGAGGCAG GCACAACTAA AGCCGGGTAC CCTTATAATT	6827

	ATAACACCACTGCTAGCGAC CAACTGCTTG TCGAGAACATGC CGCCGGGCAC CGGGTCGCTA	6887
5	TTTCCACTTA CACCACTAGC CTGGGTGCTG GTCCCGTCTC CATTCTGCG GTTGCCGTTT	6947
	TAGCCCCCA CTCTGCGCTA GCATTGCTTG AGGATACCTT GGACTACCCCT GCCCCGCGCCC	7007
10	ATACTTTGA TGATTCTGC CCAGAGTGCC GCCCCCTTGG CCTTCAGGGC TGCGCTTTCC	7067
	AGTCTACTGT CGCTGAGCTT CAGGCCCTTA AGATGAAGGT GGGTAAACT CGGGAGTTGT	7127
	AG TTTATTTGCT TGTGCCCCCCC TTCTTCTGT TGCTTATTTC TCATTTCTGC	7179
15	GTTCCCGCGCT CCCTGA	7195
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	GCCATGGAGG CCCACCAGTT CATTAAGGCT CCTGGCATCA CTACTGCTAT TGAGCAAGCA	60
20	GCTCTAGCAG CGGCCAACTC CGCCCTGCG AATGCTGTGG TGGTCCGGCC TTTCCCTTCC	120
	CATCAGCAGG TTGAGATCCT TATAAATCTC ATGCAACCTC GGCAGCTGGT GTTTCGTCTC	180
25	GAGGTTTTTT GGAATCACCC GATTCAACGT GTTATACATA ATGAGCTTGA GCAGTATTGC	240
	CGTGCTCGCT CGGGTCGCTG CCTTGAGATT GGAGCCCACC CACGCTCCAT TAATGATAAT	300
30	CCTAATGTCC TCCATCGCTG CTTTCTCCAC CCCGTCGGCC GGGATGTTCA GCGCTGGTAC	360
	ACAGCCCCGA CTAGGGGACC TGCGGCGAAC TGTCGCGCGT CGGCACCTCG TGGTCTGCCA	420
35	CCAGCCGACC GCACTTACTG TTTTGATGGC TTTGCCGGCT GCCGTTTGC CGCCGAGACT	480
	GGTGTGGCTC TCTATTCTCT CCATGACTTG CAGCCGGCTG ATGTTGCCGA GGCGATGGCT	540
40	CGCCACGGCA TGACCCGCCT TTATGCAGCT TTCCACTTGC CTCCAGAGGT GCTCCTGCCT	600
	CCTGGCACCT ACCGGACATC ATCCTACTTG CTGATCCACG ATGGTAAGCG CGCGGTTGTC	660
45	ACTTATGAGG GTGACACTAG CGCCGGTTAC AATCATGATG TTGCCACCCCT CCGCACATGG	720
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	CCTTACCCGC GTTCGACGGA GGTCTATGTC CGGTCTATCT TTGGGCCCGG CGGGTCCCCG	900
	TCGCTGTTCC CGACCGCTTG TGCTGTCAAG TCCACTTTTC ACGCCGTCCC CACGCACATC	960
55	TGGGACCGTC TCATGCTCTT TGGGGCCACC CTCGACGACC AGGCCTTTG CTGCTCCAGG	1020
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5	GCCGGGTTCC ATCTCGACCC CCGCACCTTA GTTTTGATG AGTCAGTGCC TTGTAGCTGC	1380
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10	GAGTGTCTT GTTTCTCCA GCCCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT	1500
	GAGGCCTATG AAGGCTCTGA TGTTGATACT GCTGAGCCTG CCACCCCTAGA CATTACAGGC	1560
	TCATACATCG TGGATGGTCG GTCTCTGCAA ACTGTCTATC AAGCTCTCGA CCTGCCAGCT	1620
15	GACCTGGTAG CTCGCGCAGC CCGACTGTCT GCTACAGTTA CTGTTACTGA AACCTCTGGC	1680
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	AGTATGGCAG CCGGCCCCGTT TTGCTTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT	1860
	CATTTTCCA CCGCTGGCCT CGAGAGCCGT GTGTTTTCC CCCCTGGTAA TGCCCCGACT	1920
25	GCCCCGCCGA GTGAGGTCAC CGCCTCTGC TCAGCTCTT ATAGGCACAA CCGGCAGAGC	1980
	CAGCGCCAGT CGGTTATTGG TAGTTGTGG CTGCACCTG AAGGTTGCT CGGCCTGTT	2040
30	CCGCCCTTTT CACCCGGGCA TGAGTGGCGG TCTGCTAACC CATTTGCGG CGAGAGCACG	2100
	CTCTACACCC GCACTGGTC CACAATTACA GACACACCT TAACGTGCGG GCTAATTTC	2160
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35	GTAGGCTCGT CTGACTCTCC AGACCCCTGAC CCGCTACCTG ATGTTACAGA TGGCTACGC	2280
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	TCAAAGTCCG TGCAACAGGC GGATGTGGAT GTTGTGTTG TGCCCACCTCG CGAGCTTCGG	3000
5	AACGCTTGGC GGCGCCGGGG CTTTGCAGCA TTCACTCCGC ACACTGCGGC CCGTGTCACT	3060
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10	CATATGCAGC GTGCTGCATC TGTGCACCTC CTTGGGACC CGAATCAGAT CCCCGCCATA	3180
	GATTTTGAGC ACACCGGTCT GATTCCAGCA ATACGGCCGG AGTTGGTCCC GACTTCATGG	3240
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20	GAGGCCAGG GTGCCACTTT TACCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC	3480
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30	TTCCATCAGC TTGCTGAGGA GCTGGGCCAC CGGCCGGCGC CGGTGGCGGC TGTGCTACCT	3780
	CCCTGCCCTG AGCTTGAGCA GGGCCTCTC TATCTGCCAC AGGAGCTAGC CTCCGTGAC	3840
	AGTGTGTGA CATTGAGCT AACTGACATT GTGCACTGCC GCATGGCGGC CCCTAGCCAA	3900
35	AGGAAAGCTG TTTGTCCAC GCTGGTAGGC CGGTATGGCA GACGCCACAAG GCTTTATGAT	3960
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40	ACTGCCACCA CCTGTGAACCT CTTGAGCTT GTAGAGGCGA TGGTGGAGAA GGGCCAAGAC	4080
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5	CAGAGCCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAAGTTGAA GGCTGACTTC	4740
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10	GTCGTTCGAT TCGCCGGACG GCTTTGGAG AAGAACTGGG GGCTGATCC GGAGCAGGGCA	4860
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15	GGCATGCTCC AGACTATTGG TGATGGTAAG GCGCATTAA CAGAGTCTGT TAAGCCTATA	5040
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	GGCCACAGAG GCCTCCAATT ATGCACAGTA CCGGGTTGCC CGCGCTACTA TCCGTTACCG	5700
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45	TCAAGGTTGG CGCTCGGTTG AGACATCTGG TGTTGCTGAG GAGGAAGCCA CCTCCGGTCT	5940
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50	TGCCCTTGGC TTACTGGACT TTGCCTTAGA GCTTGAGTT CGCAATCTCA CCACCTGTAA	6060
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	CGGGACTGCG GAGCTGACCA CAACTGCAGC CACCAAGGTT ATGAAAGATC TCCACTTTAC	6180
55	CGGCCTTAAT GGGGTAGGTG AAGTCGGCCG CGGGATAGCT CTAACATTAC TTAACCTTGC	6240

5 TGACACGCTC CTCGGCGGGC TCCCGACAGA ATTAATTCG TCGGCTGGCG GGCAACTGTT 6300
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 25 TCCGGGGCGG GCGCACACAT TTGATGACTT CTGCCCTGAA TGCCGCGCTT TAGGCCTCCA 7020
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 30 AACTCGGGAG TTGTAGTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTCCTTT 7140
 ATTCCTTTT TCTCGGTCCC GCGCTCCCTG A 7171
 or a fifth sequence (SEQ ID NO.12):
 35 CGGGCCCGT ACAGGTACA ACCTGTGAGT TGTACGAGCT AGTGGAGGCC ATGGTCGAGA 60
 AAGGCCAGGA TGGCTCCGCC GTCTTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA 120
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 40 AAGTGGGCCA GGGCATTTCG GCCTGGAGTA AGACCTTCTG TGCCCTTTG GGCCCTGGT 240
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 45 CCTTGATGA CACCGTCTTC TCGGCGCGTG TGGCCGCAGC AAAGGCGTCC ATGGTGTGTTG 360
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 CTATTATGGA GAAGTGTGGG ATGCCGAAGT GGCTCATCCG CTTGTACCAC CTTATAAGGT 480
 50 CTGCGTGGAT CCTGCAGGCC CCGAAGGAGT CCCTGCGAGG GTGTTGGAAG AAACACTCCG 540
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 ACGATTTCCG CGATTTGCAG GTGGCTGCCT TTAAAGGTGA TGATTGATA GTGCTTGCA 660
 55 GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA 720

AGGTGGGTTT CCGTCCGATT GGTTTGATG CAGGTGTTGT GGTGACCCCCC GGCCCTGGCG 780
5 CGCTTCCCGA CGTCGTGCGC TTGTCCGGCC GGCTTACTGA GAAGAATTGG GGCCCTGGCC 840
CTGAGCGGGC GGAGCAGCTC CGCCTTGCTG TGCG 874

or a sequence complementary thereto.

10 14. A kit comprising, in a container or separate containers, a pair of single-strand primers derived from nonhomologous regions of opposite strands of a DNA duplex fragment derived from an enterically transmitted viral hepatitis agent whose genome
15 contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

20 15. The kit of claim 15, which are derived from opposite strands of the EcoRI duplex insert in said plasmid.

25 16. A method for detecting the presence of an enterically transmitted nonA/nonB hepatitis viral agent in a biological sample, comprising
30 preparing a mixture of duplex DNA fragments derived from the sample,
denaturing the duplex fragments,
35 adding to the denatured DNA fragments, a pair of single-strand primers derived from nonhomologous regions of opposite strands of a DNA duplex fragment derived from an enterically transmitted viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717,
hybridizing said primers to homologous-sequence region of opposite strands of such duplex DNA

fragments derived from enterically transmitted nonA/nonB hepatitis agent,

reacting the primed fragment strands with DNA polymerase in the presence of DNA nucleotides, to form new DNA duplexes containing the primer sequences, and

5 repeating said denaturing, adding, hybridizing and reacting steps, until a desired degree of amplification of sequences is achieved.

10 17. The method of claim 16, wherein the primers are derived from opposite strands of the EcoRI duplex insert in said plasmid.

15 18. The method of claim 16, for detecting the presence of viral agent in a sample of cultured cells infected with the agent.

20 19. A vaccine for immunizing an individual against enterically transmitted nonA/nonB hepatitis viral agent comprising, in a pharmacologically acceptable adjuvant, a recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present 25 in plasmid pTZ-RF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717.

30 20. The vaccine of claim 19, wherein the protein is derived from the EcoRI insert in said plasmid.

35 21. A vaccine for immunizing an individual against HEV comprising, in a pharmacologically acceptable adjuvant, a protein encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

22. In a method of isolating an enterically transmitted nonA/nonB viral agent or a nucleic acid fragment produced by the agent, an improvement which

comprises: utilizing, as a source of said agent, bile obtained from a human or cynomolgus monkey having an active infection of enterically transmitted non-A/non-B hepatitis.

5

23. The method of claim 22, wherein the bile is obtained from an infected cynomolgus monkey.

24. Human polyclonal anti-serum obtained from a
10 human immunized with a protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4
15 and having ATCC deposit no. 67717.

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